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TITLE

PIGGYBACK TOOL CARRIER

CROSS REFERENCE APPLICATIONS

This application is a non-provisional application claiming the benefits of provisional application no. 60/269,759 filed Feb. 16, 2001.

FIELD OF INVENTION

Generally the invention relates to a carrier designed primarily for the safe and economical transport of containers piggyback on vehicles. The piggyback carrier can be adjustable and may be designed to fit most vehicles having conventional type hitches.

BACKGROUND OF THE INVENTION

A significant problem with transporting containers can be that the size of the container may be too large to fit into the type of vehicle typically owned or used. This may necessitate the use of a larger vehicle than desired even when the container is infrequently transported.

Another significant problem with transporting containers can be that the weight of the container may be too heavy to lift into the vehicle or to a piggyback position. This may require the use of additional labor or

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1 machinery to lift the container into the vehicle or into a
2 piggyback position.

3 Another significant problem with transporting
4 containers may be that the containers can shift in the
5 vehicle causing distraction to the driver, instability with
6 respect to the tracking of the vehicle, or damaging the
7 vehicle or the hitch.

8 The present invention addresses each of the above-
9 mentioned problems in a practical fashion. It also
10 satisfies a long-felt but unresolved need to provide
11 piggyback transport of containers, such as toolboxes,
12 wherein a loaded cargo box weighing hundreds of pounds can
13 be jacked up with a left and a right jack by one man, then
14 rolled into the receiving hitch under the rear bumper of a
15 vehicle.

16 Accordingly, the broad aspect of the invention can be
17 to provide a piggyback carrier device and provide piggyback
18 carrying techniques for transport of containers on a variety
19 of vehicles.

20 SUMMARY OF THE INVENTION

21 A significant aspect of the invention can also be to
22 provide a manner of lifting containers into the piggyback
23 position on vehicles without having to use an undesired
24 additional labor or machines.

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1 Another significant aspect of the invention can be to
2 provide stabilization elements which minimize the shifting
3 of containers in the piggyback position.

4 Other aspects of this invention will appear from the
5 following description and appended claims, reference being
6 made to the accompanying drawings forming a part of this
7 specification wherein like reference characters designate
8 corresponding parts in the several views.

9 A piggyback carrier for containers, including toolboxes
10 and the like, can be used in numerous applications including
11 using a Class 3 hitch in front or in the rear of a vehicle
12 to hold a removable frame.

13 A frame is designed to support a container, or toolbox,
14 or the like, during transport. It can provide a manner of
15 attaching the toolbox to a vehicle for transport and remove
16 it when not in transport. It can also include fittings at
17 each end for removable jacks. It can also have fittings at
18 each end for adjustable stabilizer bars. It can have a
19 receiver tube permanently attached to the center. The frame
20 is meant to be attached to the toolbox with four bolts.

21 An adjustable receiver tube can be designed to attach
22 the frame-mounted container to the vehicle's receiver hitch.
23 The tube has one hole in the end that fits into the
24 vehicle's receiver hitch and is secured by means of a
25 locking pin. The other end has several holes and is used

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1 for attaching the frame-mounted container or toolbox to the
2 adjustable receiver tube. The multiple holes provide
3 adjustability which may be necessary for use with different
4 vehicles. A locking pin can be used to secure the frame-
5 mounted toolbox to the adjustable receiver tube.

6 The two removable jacks fit on each end and can be used
7 to raise and lower the frame-mounted container, such as a
8 toolbox, while it is being attached or removed from the
9 vehicle. The removable jacks can be removed once the frame-
10 mounted toolbox is secured to the vehicle.

11 The two adjustable jack feet fit onto the shaft of each
12 removable jack and provide stability while the frame-mounted
13 container, which can be a toolbox, is being raised and
14 lowered. They can have multiple mounting holes to adjust to
15 the different heights required to attach the frame-mounted
16 toolbox to different vehicles. They can also have casters
17 to help make attaching of the frame-mounted toolbox to the
18 vehicle faster, safer, and easier.

19 The two adjustable stabilizer bars can be designed to
20 fit at each end of the frame and may provide extra support
21 by means of providing a stable adjustable contact point
22 between each end of the frame and vehicle's bumper. They
23 may inhibit load shifting while frame-mounted toolbox is in
24 transport.

1 As can be easily understood from the foregoing, the
2 basic concepts of the present invention may be embodied in a
3 variety of ways. It involves both piggyback carrier
4 techniques as well as devices to accomplish piggyback
5 carrying of containers with vehicles. In this application,
6 the piggyback carrier techniques are disclosed as part of
7 the results shown to be achieved by the various devices
8 described and as steps which are inherent to utilization.
9 They are simply the natural result of utilizing the devices
10 as intended and described. In addition, while some devices
11 are disclosed, it should be understood that these not only
12 accomplish certain methods but can be varied in a number of
13 ways. Importantly, as to all of the foregoing, all of these
14 facets should be understood to be encompassed by this
15 disclosure.

16 The reader should be aware that the specific discussion
17 may not explicitly describe all embodiments possible; many
18 alternatives are implicit. It also may not fully explain
19 the generic nature of the invention and may not explicitly
20 show how each feature or element can actually be
21 representative of a broader function or of a great variety
22 of alternative or equivalent elements. Again, these are
23 implicitly included in this disclosure. Where the invention
24 is described in device-oriented terminology, each element of
25 the device implicitly performs a function. Neither the

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1 description nor the terminology is intended to limit the
2 scope of the claims.

3 It should also be understood that a variety of changes
4 may be made without departing from the essence of the
5 invention. Such changes are also implicitly included in the
6 description. They still fall within the scope of this
7 invention.

8 Further, each of the various elements of the invention
9 and claims may also be achieved in a variety of manners.
10 This disclosure should be understood to encompass each such
11 variation, be it a variation of an embodiment of any
12 apparatus embodiment, a method or process embodiment, or
13 even merely a variation of any element of these.
14 Particularly, it should be understood that as the disclosure
15 relates to elements of the invention, the words for each
16 element may be expressed by equivalent apparatus terms or
17 method terms - even if only the function or result is the
18 same. Such equivalent, broader, or even more generic terms
19 should be considered to be encompassed in the description of
20 each element or action. Such terms can be substituted where
21 desired to make explicit the implicitly broad coverage to
22 which this invention is entitled. As but one example, it
23 should be understood that all actions may be expressed as a
24 means for taking that action or as an element which causes
25 that action. Similarly, each physical element disclosed

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1 should be understood to encompass a disclosure of the action
2 which that physical element facilitates. Regarding this
3 last aspect, as but one example, the disclosure of a
4 ``piggyback carrier'' should be understood to encompass
5 disclosure of the act of ``piggyback carrying'', such a
6 disclosure should be understood to encompass disclosure of a
7 ``piggyback carrier'' and even a means for ``piggyback
8 carrying''. Such changes and alternative terms are to be
9 understood to be explicitly included in the description.

10 In addition, as to each term used it should be
11 understood that unless its utilization in this application
12 is inconsistent with such interpretation, common dictionary
13 definitions should be understood as incorporated for each
14 term and all definitions, alternative terms, and synonyms
15 such as contained in the Random House Webster's Unabridged
16 Dictionary, second edition, are hereby incorporated by
17 reference

18 Thus, the applicant(s) should be understood to claim at
19 least: i) each of the piggyback carrying devices as herein
20 disclosed and described, ii) the related methods disclosed
21 and described, iii) similar, equivalent, and even implicit
22 variations of each of these devices and methods, iv) those
23 alternative designs which accomplish each of the functions
24 shown as are disclosed and described, v) those alternative
25 designs and methods which accomplish each of the functions

1 shown as are implicit to accomplish that which is disclosed
2 and described, vi) each feature, component, and step shown a
3 separate and independent inventions, vii) the applications
4 enhanced by the various systems or components disclosed,
5 viii) the resulting products produced by such systems or
6 components, and ix) methods and apparatuses substantially as
7 described hereinbefore and with reference to any of the
8 accompanying examples, and x) the various combinations and
9 permutations of each of the elements disclosed.

10 BRIEF DESCRIPTION OF THE DRAWINGS

11 FIG. 1 is an exploded view of the preferred embodiment of
12 the present invention.

13 FIG. 2 is a perspective view of the preferred embodiment of
14 the jack assembly of the present invention.

15 FIG. 3 is a side view of the jack assembly shown in FIG. 2.

16 FIG. 4 is a perspective view of the present invention
17 mounted on the back of a vehicle.

18 FIG. 5 is an exploded view of an alternate embodiment of the
19 jack assembly.

20 Before explaining the disclosed embodiment of the
21 present invention in detail, it is to be understood that the
22 invention is not limited in its application to the details
23 of the particular arrangement shown, since the invention is
24 capable of other embodiments. Also, the terminology used

1 herein is for the purpose of description and not of
2 limitation.

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4 **DETAILED DESCRIPTION OF THE DRAWINGS**

5 Referring first to FIG. 1, the cargo carrier 100 had a
6 frame 101, a left and right jack assembly, 102, 103 and a
7 trailer hitch connector 104. The trailer hitch connector
8 104 is adapted to receive a removable hitch shaft 105 which
9 is sized to fit into a standard vehicle hitch connector (not
10 shown). The hitch shaft 105 is removably attached to the
11 trailer hitch connector 104 with a locking pin 106 or any
12 similar type of locking mechanism. Trailer hitch connector
13 104 and the hitch shaft 105 can alternately be formed as one
14 piece. The hitch shaft 105 attaches to the vehicle hitch
15 connector in a know manner.

16 The frame 101 has crossbeams 107, frame members 108 and
17 side frame members 109 and is preferably made from square
18 steel tubing. The exact size and shape of the frame 101 and
19 the number of crossbeams 107 will depend on the size and
20 shape of the cargo carrier 110 to be mounted on the frame.
21 The frame 101 can also have a left and right stabilizer bar
22 112, 113 attached to prevent load shift. The cargo carrier
23 110 can be a box, tool box, or any other desired container.
24 The cargo container 110 can be removably mounted to the
25 frame with screws 111, as shown, or alternatively the cargo

1 container could be strapped to the frame 101 using cargo
2 straps in known manner not shown. The cargo container 110
3 could be a preexisting box or a custom made box designed to
4 go with a specific frame or job.

5 As shown in FIGS. 2 and 3, the preferred embodiment of
6 the jack assemblies 102, 103 removably attaches to the side
7 members 109. The jack assembly 102 has a riser body 201.
8 The riser body 201 has a handle 202 and functions in a known
9 manner to allow the user to raise and lower the frame 101 to
10 the desired height. The jack assemblies 102, 103 can be
11 provided with wheels 203 to allow the entire assembly 100 to
12 be easily moved. The jack assemblies 102, 103 are removably
13 attached to the frame 101 on the side frame members 109 with
14 a bracket 204. The bracket 202 shaped to fit over side
15 frame member 109 and is longitudinally aligned with the
16 frame 101 to allow the bracket 204 to fit over the side
17 frame members 109. The bracket 202 is secured to the side
18 frame members 109 with a locking pin 205 or other known
19 locking mechanism. This allows the jack assemblies 102, 103
20 to be removed from the cargo carrier 100 once the frame is
21 attached to the vehicle as shown in FIG. 4.

22 In an alternate embodiment of the present invention
23 shown in FIG. 5, jack assembly 500 with a top mounted handle
24 501 and a female connector 504 on one side is used. The
25 frame 101 has a vertical column 502 with a male connector

1 which is adapted to receive the male connector 503 on the
2 vertical column 502. The connectors 503 and 504 are secured
3 together with a locking pin 505 or other known locking
4 mechanisms.

5 In both embodiments of the jack assemblies, the riser
6 body is attached to a base 205, which holds the wheels 203.
7 The riser bodies can be removably attached to the base 202
8 with a locking pin 206 as shown in FIGS. 1 and 5.

9 Although the present invention has been described with
10 reference to preferred embodiments, numerous modifications
11 and variations can be made and still the result will come
12 within the scope of the invention. No limitation with
13 respect to the specific embodiments disclosed herein is
14 intended or should be inferred.

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